CEIS
center for environmental information and statistics

Center for Environmental Information and Statistics

US Environmental Protection Agency

Major Findings from the CEIS Review of EPA'S

RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM (RCRIS) DATABASE

July 23, 1999

Major Findings from the CEIS Review of EPA's RCRIS Database

EXECUTIVE SUMMARY

The **Resource Conservation and Recovery Information System (RCRIS)** is an administrative system designed to assist EPA Headquarters (HQ), EPA Regions, and States in managing the activities of hazardous waste handlers under the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984. RCRA is a delegated program in which authorized States or Regions manage the program, collect data from waste handlers, and maintain the collected data. An agreed-upon subset of all the data collected by the authorized States or Regions is uploaded to the RCRIS National Oversight Database (hereafter simply referred to as RCRIS). The database contains an inventory of waste handlers and information about their waste-handling activities. For all waste handlers, RCRIS maintains data on the identification, location, mailing address, contact person, ownership, releases of hazardous materials, clean-up events, and compliance with the Federal and State regulations. For Treatment, Storage, and Disposal (TSD) facilities, RCRIS maintains additional information on status and history of permitting, closure, and post-closure activities.

The EPA HQ makes an agreement with the authorized States and Regions as to what subset of the collected information will be transferred to the RCRIS database. This process allows for maintaining a consistent set of elements across different States and helps in making spatial comparisons of RCRIS data. However, some States use a definition of Large Quantity Generators (LQGs) which is more stringent than the Federal definition. These States are required to convert the data to match the Federal definitions prior to reporting the data to RCRIS. Some States do not comply with this requirement, and users should take into account these differences in definition when making spatial comparisons.

Some of the information, particularly that related to names and addresses of waste handlers, is outdated. A waste handler is required to notify the authorized authority about changes in its name, location, or waste handling activities, but not all handlers do this. However, the information for TSDs is generally current, as communication between the authorized authority and TSDs is maintained via permitting events and inspections.

RCRIS is a national program management and inventory system, in which all major permitting and clean-up activities of RCRA waste handlers are tracked. RCRIS provides a partial picture of waste generation and management activities for those covered under the RCRA program. The information about the different kinds of wastes generated, quantity of waste generated, and on- and off-site management of waste is stored in the Biennial Reporting System (BRS) and not in RCRIS.

1. INTRODUCTION

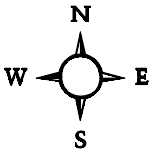
The **Resource Conservation and Recovery Information System (RCRIS)** is an administrative system designed to assist EPA headquarters (HQ), EPA Regions, and States in managing the activities of hazardous waste handlers under the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. Hazardous waste handlers include hazardous waste Treatment, Storage, and Disposal (TSD) facilities, hazardous waste generators, hazardous waste transporters, hazardous waste fuel marketers, and used oil recyclers. RCRIS contains information on the identification, location, status, and history of permitting, closure, and post-closure activities, Federal and State compliance, and enforcement issues for hazardous waste handlers. As of March 1999, RCRIS included data on approximately 450,000 handlers.

RCRA is a delegated program in which authorized States or Regions manage the program, collect data from waste handlers, and maintain the collected data. An agreed-upon subset of all the data collected by the authorized States or Regions is uploaded to the RCRIS National Oversight Database (hereafter referred to simply as RCRIS). The Office of Solid Waste and Emergency Response (OSWER) at EPA HQ is responsible for the maintenance and administration of RCRIS. The compliance and enforcement modules of RCRIS fall within the purview of the Office of Enforcement and Compliance Assurance (OECA). Information on RCRIS compliance and enforcement is reviewed in a separate document.

2. SUMMARY ANSWERS TO REVIEW QUESTIONS

2.1. What does the database cover?

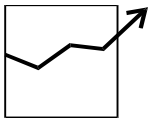
The database contains an inventory of waste handlers and information about their waste handling activities. The waste handlers are classified into three major groups, namely Treatment, Storage and Disposal (TSD) facilities; waste generators; and transporters. For all waste handlers, RCRIS maintains data on the identification, location, mailing address, contact person, ownership, releases of hazardous materials, clean-up events, and compliance with Federal and State regulations. Under the RCRA program, TSD facilities are required to obtain operating, closure, and post-closure permits. RCRIS maintains information on permitting events, permitting status, and closure/post-closure status for TSD facilities. As of March 1999, RCRIS contained information on approximately 450,000 waste handlers.



2.2. Can the database be used for spatial analysis?

The database can be used for spatial analyses because TSDs, generators, and other waste handlers are required to report the address of their physical location. The database stores latitude and longitude information for most of the TSDs, but does not contain such information for most of the other waste handlers. The available latitude and longitude information is not quality assured. In the absence of latitude and longitude information, other spatial elements such as street address for each facility, the facility ZIP code, the Federal Information Processing Standards (FIPS) county code, and the two-letter state abbreviation can be used for spatial comparison of facilities. These location parameters can be used to report and compare waste generation and management activities of Large Quantity Generators (LQGs), TSDs, and other waste handlers in different geographic areas.

Some of the location information, particularly related to Small Quantity Generators (SQGs) and other small waste handlers, is not reliable because it has inaccurate ZIP codes or is not current. Some waste handlers provide Post Office Boxes for the address of their physical location. These issues should be considered in making spatial comparisons.

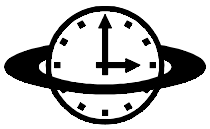


2.3. Can the database be used for temporal analysis?

RCRIS maintains a log of events pertinent to the management of a waste handler. For example, for a TSD, RCRIS stores the information as to when an application was submitted seeking approval to treat hazardous waste, when the decision was made, and what the decision was. These dated events can be used to construct a time profile of the activities of a waste handler. By the very nature of the information maintained in RCRIS, events do not occur at defined or regular intervals of time.

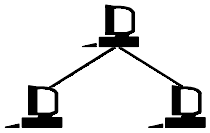
As part of the streamlining initiative, the number of 'core' events stored in RCRIS have been reduced. The 'core' events are the key program milestones to track and manage the RCRA program. The user will be able to construct a complete time profile for the 'core' events, but will not be able to do so for other events.

RCRIS inherited data from its predecessor systems. Some of this data was not scrubbed, and as a result a few permit records have an erroneous permit application date. These records can provide inaccurate estimates of time required to obtain permits.



2.4. How consistent are the variables over space and time?

The EPA HQ makes an agreement with the delegated States and Regions as to which subset of the collected information will be transferred to RCRIS. This process allows for maintaining a consistent set of elements among States. However, some States may not input the agreed-upon information in a timely manner. Some States use a definition of LQGs which is more stringent than the Federal definition. These States are required to convert the data to match the Federal definitions prior to reporting it to RCRIS. Some States do not comply with this requirement, and users should take into account these differences in definitions when making spatial comparisons.



2.5. Can data from RCRIS be linked with information from other databases?

The reporting waste handlers can be linked with facilities from other databases. These facilities can be linked by using the addresses of facilities or other location variables, such as ZIP codes and Federal Information Processing Standards (FIPS) codes for county and state. Additionally, TSD facilities are required to submit latitude/longitude data, which can be used to link TSDs with facilities in other databases. However, the user should exercise caution when using RCRIS latitude and longitude information as the information is not quality-assured. RCRIS waste handlers can be linked with facilities in other databases which store RCRIS identification numbers, such as the Toxics Release Inventory (TRI) and BRS databases.

2.6. How accurate are the data in RCRIS?

States and Regions which enter the data are responsible for quality control and quality assurance of the data. Many edit controls and consistency checks are instituted during the process of uploading data from State or Regional systems to the national system. These checks ensure consistency of important data elements.

RCRIS contains some data which was inherited from its predecessor systems, such as the Hazardous Waste Data Management System (HWDMS). Some of these data have problems as they were not scrubbed prior to migration into RCRIS. RCRIS was explicitly designed to ensure better data quality for newly entered or updated data, but not to impose significant data clean-up requirements on implementors for data migrated from the predecessor systems. Over time, RCRIS has been modified to meet the emerging needs of the program, but the past data are not always scrubbed to reflect the new programmatic needs.

2.7. What are the limitations of RCRIS?

Under the RCRA program, all hazardous waste handlers are required to notify their respective authorized States or Regions about their waste-handling activities and obtain an identification number. RCRIS contains information on some notifiers for whom information has not been updated. However, TSDs are

required to obtain permits for operating and closing waste management sites, and thus the information for them is generally current. It is also possible that not all waste handlers notify the appropriate RCRA authority of this activity, and thus some waste handlers are not listed in RCRIS.

RCRIS provides a partial picture of waste-generation and waste-management activities covered under the RCRA program. While RCRIS stores only the administrative information, the Biennial Reporting System (BRS) stores information about the different kinds of waste generated, their quantity, and their on-site and off-site management. Even though the information in RCRIS and BRS can be linked using the RCRIS identification numbers, it is not easy for an average user to do so.

2.8. How can I get information on RCRIS?

The public may query the RCRIS database via Envirofacts at the following address:

http://www.epa.gov/enviro/

The public can also obtain the list of TSDs, the list of handlers with corrective action activity, and the list of RCRA-regulated handlers (by State) through the OSWER web site at the following address:

http://www.epa.gov/epaoswer/osw/catalog.htm

The information on RCRIS is available through the Right-to-Know network, a non-profit organization, at the following site:

http://www.rtk.net

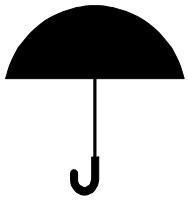
RCRIS data can be purchased from the National Technical Information Services (NTIS), an agency of the U.S. Department of Commerce, and other commercial vendors.

National Technical Information Services (NTIS)
US Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Phone: (800) 553-6847 or (703) 487-4650
Fax: (703) 321-8547
Email: info@ntis.fedworld.gov

2.9. Is there documentation on RCRIS?

There are a number of user and system documents available from the Office of Solid Waste (OSW) that are listed in the detailed answers that follow.

3. DETAILED ANSWERS TO REVIEW QUESTIONS



3.1. What does the database cover?

The RCRIS National Oversight Database (hereafter referred to simply as RCRIS) is a national program management and inventory system of RCRA waste handlers. It contains data on the status and history of the regulatory activities conducted by EPA or the authorized States, relating to waste handlers. In March of 1999, RCRIS contained entries for approximately 450,000 hazardous waste handlers including Treatment, Storage, and Disposal (TSD) facilities, generators, and transporters of hazardous waste. Under RCRA, a waste is any solid, liquid, or contained gaseous material that is discarded by being disposed of, burned or incinerated, or recycled. Waste is considered "hazardous" if it falls into either of the following two categories:

- **Listed waste**: If it is one of the over 400 wastes that appear on one of the five lists published in the Code of Federal Regulations (40 CFR Part 261).
- **Characteristic waste**: If the waste does not appear on the above-mentioned lists but demonstrates one or more of the following characteristics:
  - it is ignitable, where it catches fire under certain conditions;
  - it is corrosive, where it corrodes metals or has a very high or very low pH;
  - it is reactive, where it is unstable and explodes or produces toxic fumes, gases, or vapors when mixed with water or under other conditions such as heat or pressure;
  - it is toxic, where it is harmful or fatal when ingested or absorbed, or it leaches toxic chemicals into the soil or ground water when disposed of on land.

Who Must Report?

Under the program, all hazardous waste handlers must report their waste-handling activities to their respective authorized authority. There are three major categories of waste handlers, namely, TSDs; waste generators; and transporters. TSD facilities, subject to permitting, receive and store, treat, or dispose of hazardous waste. All such facilities (except for facilities which store only small amounts of hazardous waste for limited periods of time) are required to obtain an operating permit and are subject to closure/post-closure requirements under RCRA. TSD facilities must obtain permits from the appropriate authorized authorities and must report their activities to them. The authorized authority (State or Region) inputs information obtained from TSDs into its database. A TSD facility may have different processing units at the same location that handle the waste in different ways (e.g., a facility may have an incinerator and a surface impoundment). RCRIS is a census of all reporting TSD facilities and all processing units at those TSD facilities. As of March 1999, there were 3,185 TSD facilities (i.e., facilities subject to inspection) in RCRIS.

RCRIS maintains an inventory of waste generators. Generators are classified into three major groups as follows:

- **Large Quantity Generator (LQG)** is defined as a Federal LQG if it meets any of the following criteria during the year: [a] the facility generated in one or more months 1,000 kg (2,200 lbs) or more of RCRA hazardous waste; or [b] the facility generated in one or more months, or accumulated at any time, 1 kg (2.2 lbs) of RCRA acute hazardous waste; or [c] the facility generated or accumulated at any time more than 100 kg (220 lbs) of spill clean-up material contaminated with RCRA acute hazardous waste.
- **Small Quantity Generator (SQG)** is defined as a generator which generated between 100 kg and 1,000 kg of hazardous waste per month.
- **Conditionally Exempt Small Quantity Generator (CESQG)** is defined as a generator which generated less than 100 kg of hazardous waste, or less than 1 kg of acute hazardous waste per month and accumulated less than 1,000 kg of hazardous waste at any time.

SQGs and LQGs are required to obtain an identification number and are included in RCRIS. Although not required, some CESQGs also obtain identification numbers, and are therefore included in RCRIS. As part of a system-streamlining initiative, OSWER stopped including all CESQGs with no core program activity (i.e., no national corrective action or enforcement data) in the national RCRIS database.

Hazardous waste transporters are required to provide information on their activities, including the modes of transportation used to transport hazardous waste. Finally, RCRIS contains information on hazardous waste fuel marketers and used-oil recyclers.

How Are Data Reported?

Hazardous waste handlers are required by the RCRA regulations to notify the appropriate authorized authority (State or Region) via the Notification of Regulated Waste Activity Form (EPA Form 8700-12) or via an equivalent State notification form. When the Notification Form is received, an EPA ID number is assigned to the handler. TSD facilities submit requests for permits to their respective authorized authorities. The responsible State or Region tracks different events associated with the processing of permits. States and Regions also track all activities related to hazardous spills and the associated clean-up activities. Emergency spills, such as those by a truck carrying hazardous waste overturning on a highway, are not tracked in RCRIS. The database tracks spills, such as leaking storage tanks, occurring in TSD facilities. Data are collected, validated, and maintained by the State or the EPA Regional offices. The authorized States or Regions collect and maintain data in their RCRIS databases. Every month, agreed-upon parts of these databases are uploaded to the National Oversight database. The agreed-upon data elements that are uploaded to RCRIS are called ‘core’ data elements, and are considered to be important to provide oversight to the RCRA program.

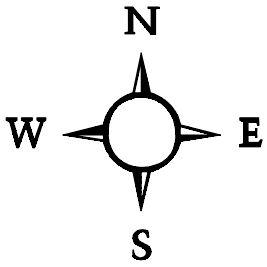
What is Stored in RCRIS?

The information stored in RCRIS can be grouped into three major categories:

1. **Handler Information**: This group contains information on identification of a handler; address of its physical location; mailing address, name and phone number of the contact person; name, phone number and address of the owner/operator; and date of change of ownership. RCRIS allows tracking of multiple current owners, multiple current operators, multiple previous owners, and multiple previous operators. The database contains the source of the information showing where the information was obtained (e.g., from notification, from part A of a permit application, or from another source). The waste handler is characterized in its current status as waste generator, TSD, or transporter. A waste handler can fall into multiple categories. For example, a waste generator can be a TSD facility and a transporter. Additional information is collected for some groups of waste handlers. For example, for TSDs, latitude and longitude information is collected through Part A of a permit form, and for transporters the mode of transportation of waste is collected.

2. **Permitting Information**: This group provides information on different permitting events. A TSD facility has to obtain a permit from the appropriate authorized authority to operate or to close operation. A facility has to satisfy a series of requirements to assure the authorized authority that RCRA waste will be managed in accordance with the RCRA program. The authorized authority tracks each event in the permitting cycle for its records. A subset of these event records are uploaded to RCRIS. Specifically, the permitting group stores information for each process unit at a TSD facility about type of permit (operating, closure, or post-closure), permit event, date of event, response of the authorized authority, type of process, capacity, unit of measurement, number of units, and legal and operating status.

3. **Corrective Action Information**: This group relates to releases, spills, and actions taken to contain them. Releases or spills can occur at the site of any waste handler. In the event of hazardous waste releases or spills, the authorized authority has to ensure that the waste handler is taking necessary stabilization or remedial actions. The authorized authority tracks all events related to the corrective action, but only a subset of these events is tracked in RCRIS. Specifically, RCRIS tracks the area affected by the release or spill, the different steps taken to stabilize or remedy the situation, the time when different steps were taken, the authorized authority responsible for overseeing the clean-up activity, the legal authority and the instrument used for clean-up activity, the priority of the clean-up area, and the risks to human health and the environment.

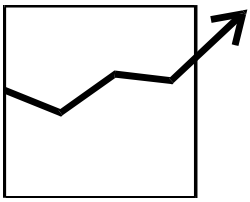


3.2. Can the database be used for spatial analysis?

The database can be used for spatial analyses because TSDs, generators, and other waste handlers are required to report the addresses of their physical locations. The location variables contain, for a waste handler, information on City, County, State, and Region. In October of 1997, more than 99% of the waste handlers had information on location parameters. These variables can be used to compare activities of waste handlers in different geographic areas. The database also stores latitude and longitude information for TSDs, but does not contain such information for most of the other waste handlers. According to the October 1997 information, only 23% of all handlers and 73% of TSD facilities had information on latitude and longitude. The available latitude and longitude information is not quality assured. For TSDs, the available latitude and longitude information can be used for limited geographic analyses.

Some of the location information, particularly related to SQGs and other small waste handlers, is not reliable because it has inaccurate ZIP codes or is not current. Some waste handlers provide Post Office boxes for the address of their physical location. These issues should be considered in making spatial comparisons.

The Office of Enforcement and Compliance Assurance (OECA) has a strategy to inspect TSD facilities every two years and LQGs every five years. Coupled with this, the fact that TSDs need to obtain permits for waste management and hence are in contact with the authorized authority, the location information on TSDs is expected to be current and reliable for spatial comparisons. Any location changes in the past five years for LQGs may not be reflected in RCRIS.



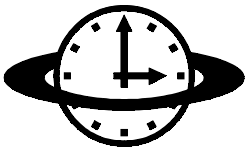
3.3. Can the database be used for temporal analysis?

RCRIS maintains a log of events pertinent to the management of a waste handler. For example, for a TSD, RCRIS stores the information as to when a TSD submitted a permit application for approval of hazardous waste treatment, when the decision was made, and what it was. These dated events can be used to construct a time profile of various events for a waste handler. By the very nature of the information maintained in RCRIS, events do not occur at defined or regular intervals of time.

As a part of the streamlining initiative, the number of ‘core’ events stored in RCRIS have been reduced. The ‘core’ events are the key program milestones to track and manage the RCRA program. The user will be able to construct a complete time profile for the ‘core’ events, but will not be able to do so for other events.

RCRIS inherited data from its predecessor systems, such as the Hazardous Waste Data Management System (HWDMS). Some of this data was not scrubbed, and as a result a few permit records have an erroneous permit application date. These records can provide inaccurate estimates of time required to obtain permits.

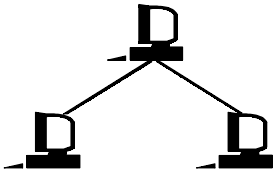
The current status of waste handlers is not updated at regular time intervals which makes it difficult to compare the changes in the number of waste handlers over a period of time.



3.4. How consistent are the variables over space and time?

EPA HQ makes an agreement with the authorized States and Regions as to which subset of the collected information will be transferred to RCRIS. This process allows for maintaining a consistent set of elements across different States. However, some States may not input the agreed-upon information in a timely manner. Some States use a definition of LQGs which is more stringent than the Federal definition. These States are required to convert the data to match the Federal definitions prior to reporting it to RCRIS. Some States do not comply with this requirement, and users should take into account these differences in definitions while making spatial comparisons.

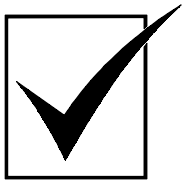
The set of 'core' elements uploaded to RCRIS has changed over time, and thus a comparison of all elements over time is not possible.



3.5. Can data from RCRIS be linked with information from other databases?

RCRIS has the potential to be linked with other databases using some of the variables listed below:

- name and address of the handler
- latitude and longitude (primarily for TSDs)[1]
- SIC codes
- FIPS codes for States and counties
- RCRIS identification number, when this is used in another database (such as the EPA TRI and BRS Systems)



3.6. How accurate are the data in RCRIS?

In RCRIS, data are uploaded from databases of the authorized State or Region. The States or Regions are responsible for the data quality and assurance. The waste handlers notify their respective authorized authority about their name, location, and the activity with hazardous waste in which they are engaged. The receiving States or Regions enter and maintain this information in their respective databases. Under the RCRA program, waste handlers are required to notify the authorized authority about name or address changes or changes in waste handling activities, but handlers do not consistently give notification.

[1]Users should exercise caution because the quality of these variables is not known.

The TSDs have more interaction with the authorized authority. As TSDs are required to obtain operating or closure permits for managing hazardous waste, they communicate more with the authorized authority, and errors in their name or address variables are likely to be fewer. The authorized authorities keep track of many events related to granting or revoking permits, and to stabilizing or remedying activities for a release. Since these data are used for managing internal processes, the authorized authorities have an interest in maintaining good quality information. RCRIS was specifically designed to ensure data quality for new data entered or updated, but not to impose significant data clean-up requirements on the implementors. Some data inaccuracies exist in RCRIS due to the following reasons:

- RCRIS inherited data from some of its predecessor systems, such as the Hazardous Waste Data Management System (HWDMS), and not all data were scrubbed prior to migrating them to RCRIS;
- Information uploaded to RCRIS from State or Regional systems has been revised to accommodate changing needs of the RCRA program. Due to insufficient resources, only current data are modified; and
- The latitude and longitude information submitted by TSDs are not verified, as the program believes that these variables are not important for managing the program.

The States and EPA Regions are responsible for data entry and editing. Data entry screens and additional editing when databases are merged help minimize errors. When data are entered directly into RCRIS, the software provides error messages when the entered items differ from codes defined as acceptable.

3.7. What are the limitations of RCRIS?

Under the RCRA program, all hazardous waste handlers are required to notify their respective authorized States or Regions about their waste handling activities and obtain an identification number. RCRIS contains some notifiers for whom current information is not available and the existing information is outdated. TSDs are required to obtain permits for operating and closing waste management sites, and thus the information for them is more current. It is also possible that not all waste handlers notify the appropriate RCRA authority, and thus some waste handlers may not be listed in RCRIS. It is difficult to quantify the number of missing waste handlers.

RCRIS provides a partial picture of waste generation and waste management activities covered under the RCRA program. While RCRIS stores only the administrative information, the Biennial Reporting System (BRS) stores information about the different kinds of waste generated, their quantity, and their on-site and off-site management. Even though the information in RCRIS and BRS can be linked using the RCRIS identification numbers, it is not easy for an average user to do so.

The data in RCRIS are uploaded from all the authorized States or Regions. The RCRA program provides freedom to the authorized authority in managing the

program as long as the regulations of the authorized authority are at least as stringent as the Federal regulations. States which use more stringent definitions for generators are required to convert the data reported to EPA to match the Federal definitions, but some States do not comply with this requirement. These differences in definition have to be taken into account when comparing different States.

Of all the waste handlers, only TSDs are required to provide latitude and longitude information. However, this information is not quality assured and cannot be used for determining the precise location of a facility.

3.8. How can I get information on RCRIS?

The public may query the RCRIS database via Envirofacts at the following address:

http://www.epa.gov/enviro/

The public can also obtain a list of TSDs, a list of handlers with corrective action activity, and a list of RCRA regulated handlers (by State) through the OSWER web site at the following address:

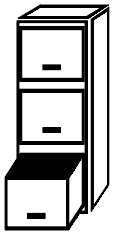
http://www.epa.gov/epaoswer/osw/catalog.htm

The information on RCRIS is available through the Right-to-Know network, a non-profit organization, at the following site:

http://www.rtk.net

RCRIS data can be purchased from the National Technical Information Services (NTIS), an agency of the U.S. Department of Commerce, and other commercial vendors.

National Technical Information Services (NTIS)
US Department of Commerce
5285 Port Royal Road
Springfield, VA 22161
Phone: (800) 553-6847 or (703) 487-4650
Fax: (703) 321-8547
Email: info@ntis.fedworld.gov



3.9. Is there documentation on RCRIS?

The Statutory Authority of the program is described in the following documents:

- US Code Title 42, The Public Health and Welfare, Chapter 82 Solid Waste Disposal
- 40 CFR Parts 260-263

The following documents are available about the RCRIS database:

- RCRIS User Guide
- RCRIS Data Element Dictionary
- RCRIS Structure Charts
- RCRIS Translator Guide
- RCRIS Reports Library
- Quick Reference Guide to RCRIS Codes
- RCRIS Merged Database Administrator Guide